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EXAMINER	
WILLIAMS, LAWRENCE B	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/810,948	LAKKIS, ISMAIL	
	Examiner	Art Unit	
	Lawrence B. Williams	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8-16,20-29 and 33-36* is/are rejected.

7)☒ Claim(s) *5-7,17-19 and 30-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the abstract is not descriptive of the subject matter claimed. Correction is required. See MPEP § 608.01(b).

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Line 1 of claim 24 recites "the wireless communication system of claim 24". This language makes the claim indefinite since the claim cannot depend upon itself. The examiner suggests applicant rewrite the claim to particularly point out and distinctly claim the subject matter applicant regards as the invention.

Claim Objections

6. Claim 5 is objected to because of the following informalities: The examiner suggests applicant replace the phrase "base don" with "based on". Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-2, 11-14, 23-27, 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Mazur et al. (US Patent 6,650,910 B1).

(1) With regard to claim 1, Mazur et al. discloses in Fig(s). 2, 3, a receiver, comprising: a first antenna (AA1) configured to receive wireless signals, a second antenna (AA2) configured to receive wireless signals, a delay block (D) coupled with the second antenna, the delay configured to delay the wireless signals received by the second antenna (AA2, col. 6, lines 36-39); and a combiner (CMB) configured to combine the wireless signals received by the first antenna and the delayed wireless signals received by the second antenna; and a baseband circuit (RX, EqSE, col. 6, lines 5-8, lines 49-56) configured to process the combined wireless signals.

(2) With regard to claim 2, Mazur et al. also discloses wherein the delay block is configured to delay the wireless signals received by the second antenna by a fixed delay (col. 7, line 65-col. 8, line 7).

(3) With regard to claim 11, Mazur et al. also discloses wherein a baseband circuit is configured to use maximum ratio combining to process the combined wireless signals (col. 6, lines 49-56).

(4) With regard to claim 12, Mazur et al. also discloses in Fig(s). 2, 3, the receiver of claim 1, further comprising a plurality of antennas (AA2) configured to receive wireless signals, and a plurality of delay blocks (D, DLM) interfaced with the plurality of antennas, the plurality of delay blocks configured to delay the wireless signals received by the plurality of antennas (col. 6, lines 36-39).

(5) With regard to claim 13, Mazur et al. also discloses in Fig(s). 1-3, a wireless

communication system, comprising: a transmitter (col. 5, lines 41-42, Mazur et al. discloses the antenna diversity arrangement improves the uplink quality. Thus a transmitter in the base station is inherent) configured to transmit wireless signals; and a receiver comprising: a first antenna (Fig. 2, AA1) configured to receive the wireless signals transmitted by the transmitter, a second antenna (Fig. 2, AA2) configured to receive the wireless signals transmitted by the transmitter, a delay block (D) coupled with the second antenna, the delay configured to delay the wireless signals received by the second antenna (AA2, col. 6, lines 36-39), and a combiner (CMB) configured to combine the wireless signals received by the first antenna and the delayed wireless signals received by the second antenna, a baseband circuit (RX, EqSE, col. 6, lines 5-8, lines 49-56) configured to process the combined wireless signals.

(6) With regard to claim 14, Mazur et al. also discloses wherein the delay block is configured to delay the wireless signals received by the second antenna by a fixed delay (col. 7, line 65-col. 8, line 7).

(7) With regard to claim 23, Mazur et al. also discloses the wireless communication system of claim 13, wherein the baseband circuit is configured to use maximum ratio combining to process the combined wireless signals (col. 6, lines 49-56).

(8) With regard to claim 24, Mazur et al. also discloses in Fig(s). 2, 3, the wireless communication system of claim 13, further comprising a plurality of antennas (AA2) configured to receive wireless signals, and a plurality of delay blocks (D, DLM) interfaced with the plurality of antennas, the plurality of delay blocks configured to delay the wireless signals received by the plurality of antennas (col. 6, lines 36-39).

(9) With regard to claim 25, Mazur et al. also discloses wherein the transmitter comprises

a plurality of antenna (col. 5, lines 41-43).

(10) With regard to claim 26, Mazur et al. also discloses in Fig(s). 2-4, a method for receiving wireless signals, comprising receiving a first wireless signal with a first antenna (AA1), receiving a second wireless signal with a second antenna (AA2), delaying (D) the wireless signal received by the second antenna (AA2) a certain amount (col. 6, lines 36-39); combining (CMB) the wireless signal received by the first antenna and the delayed wireless signal received by the second antenna; and processing the combined signals (RX, EqSE, col. 6, lines 5-8, lines 49-56).

(11) With regard to claim 27, Mazur et al. also the method of claim 26, wherein delaying the wireless signals received by the second antenna comprises delaying the wireless signals by a fixed delay (col. 7, line 65-col. 8, line 7).

(12) With regard to claim 36, Mazur et al. also discloses the method of claim 26, wherein processing the combined wireless signals comprises applying maximum ratio combining to the combined wireless signals (col. 6, lines 49-56).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) as applied to claim 2 above, and further in view of Kelton et al. (US Patent 5,926,503 B1).

Claim 3 inherits all limitations of claim 2 above. As noted above, Mazur et al. discloses all limitations of claim 2. Mazur et al. does not explictly disclose wherein the fixed delay is based on a known delay spread. However, Kelton et al. discloses a DS-CDMA receiver and forward link diversity method wherein he teaches a fixed delay (Fig. 1, element 142) based on a known delay spread (col. 7, lines 45-63).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Kelton et al. to prevent the two signals from being added at the same point in time, which would eliminate much of the diversity gain.

11. Claims 4, 8-10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) in view of Kelton et al. (US Patent 5,926,503 B1) as applied to claim 3, above, and further in view of Schilling (US Patent 5,633,889).

(1) With regard to claim 4, claim 4 inherits all limitations of claim 3 above. As noted above, Mazur et al. in combination with Kelton et al. disclose all limitations of claim 3. They do not however disclose wherein the baseband circuit is configured to dynamically update the delay applied by the delay block.

However, Schilling discloses in Fig. 3, a phase array spread spectrum system and method wherein he teaches a baseband circuit (40, Schilling discloses the module for processing different

chipping sequences, which would inherently imply the circuit is baseband) configured to dynamically update a delay applied by the delay block (col. 4, line 65-col. 5, line 10).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(2) With regard to claim 8, Schilling also discloses the receiver of claim 4, wherein the baseband circuit is configured to continually dynamically update the delay applied by the delay block (col. 2, lines 28-32; col. 9, lines 36-44).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(3) With regard to claim 9, Schilling also discloses wherein the baseband circuit is configured to periodically dynamically update the delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay. Thus the delay would be updated periodically dependent upon the magnitude value).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(4) With regard to claim 10, Schilling also discloses wherein the baseband circuit is configured to non-periodically dynamically update the delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value,

either greater or less than a previous value to increase or decrease the delay). Since Schilling makes no disclosure as to adjusting the delay when the magnitude is equal to a previous value, it is inherent that no adjustment is made. This leads to a non-periodically dynamic update of the delay. Thus the delay would be updated periodically dependent upon the magnitude value.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) as applied to claim 14 above, and further in view of Kelton et al. (US Patent 5,926,503 B1).

Claim 15 inherits all limitations of claim 14 above. As noted above, Mazur et al. discloses all limitations of claim 15. Mazur et al. does not explictly disclose wherein the fixed delay is based on a known delay spread.

However, Kelton et al. discloses a DS-CDMA receiver and forward link diversity method wherein he teaches a fixed delay (Fig. 1, element 142) based on a known delay spread (col. 7, lines 45-63).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Kelton et al. to prevent the two signals from being added at the same point in time, which would eliminate much of the diversity gain.

13. Claims 16, 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) in view of Kelton et al. (US Patent 5,926,503 B1) as applied to claim 13, above, and further in view of Schilling (US Patent 5,633,889).

Claim 16 inherits all limitations of claim 13 above. As noted above, Mazur et al. in combination with Kelton et al. disclose all limitations of claim 13. They do not however disclose wherein the baseband circuit is configured to dynamically update the delay applied by the delay block.

However, Schilling discloses in Fig. 3, a phase array spread spectrum system and method wherein he teaches a baseband circuit (40, Schilling discloses the module for processing different chipping sequences, which would inherently imply the circuit is baseband) configured to dynamically update a delay applied by the delay block (col. 4, line 65-col. 5, line 10).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(2) With regard to claim 20, Schilling also discloses the receiver of claim 16, wherein the baseband circuit is configured to continually dynamically update the delay applied by the delay block (col. 2, lines 28-32; col. 9, lines 36-44).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(3) With regard to claim 21, Schilling also discloses wherein the baseband circuit is configured to periodically dynamically update the delay applied by the delay block (col. 4, line

64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay. Thus the delay would be updated periodically dependent upon the magnitude value).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(4) With regard to claim 22, Schilling also discloses wherein the baseband circuit is configured to non-periodically dynamically update the delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay). Since Schilling makes no disclosure as to adjusting the delay when the magnitude is equal to a previous value, it is inherent that no adjustment is made. This leads to a non-periodically dynamic update of the delay. Thus the delay would be updated periodically dependent upon the magnitude value.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

14. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) as applied to claim 27 above, and further in view of Kelton et al. (US Patent 5,926,503 B1).

Claim 28 inherits all limitations of claim 27 above. As noted above, Mazur et al.

discloses all limitations of claim 27. Mazur et al. does not explictly disclose wherein the fixed delay is based on a known delay spread.

However, Kelton et al. discloses a DS-CDMA receiver and forward link diversity method wherein he teaches a fixed delay (Fig. 1, element 142) based on a known delay spread (col. 7, lines 45-63).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Kelton et al. to prevent the two signals from being added at the same point in time, which would eliminate much of the diversity gain.

15. Claims 29, 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) in view of Kelton et al. (US Patent 5,926,503 B1) as applied to claim 26, above, and further in view of Schilling (US Patent 5,633,889).

(1) With regard to claim 29, claim 29 inherits all limitations of claim 26 above. As noted above, Mazur et al. in combination with Kelton et al. disclose all limitations of claim 26. They do not however disclose the method of claim 26, further comprising dynamically updating the certain amount of delay.

However, Schilling discloses in Fig. 3, a phase array spread spectrum system and method wherein he teaches a baseband circuit (40, Schilling discloses the module for processing different chipping sequences, which would inherently imply the circuit is baseband) dynamically updating a certain amount of delay (col. 4, line 65-col. 5, line 10).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(2) With regard to claim 33, Schilling also discloses the method of claim 29, further comprising continually dynamically updating the certain amount of delay (col. 2, lines 28-32; col. 9, lines 36-44).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(3) With regard to claim 34, Schilling also discloses the method of claim 29, further comprising periodically dynamically updating the certain amount of dalay (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay. Thus the delay would be updated periodically dependent upon the magnitude value).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(4) With regard to claim 35, Schilling also discloses the method of claim 29, further comprising non-periodically dynamically updating the certain amount of delay (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay). Since Schilling makes no disclosure as to adjusting the delay when the magnitude is equal to a previous value, it is inherent

that no adjustment is made. This leads to a non-periodically dynamic update of the delay. Thus the delay would be updated periodically dependent upon the magnitude value.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

Allowable Subject Matter

16. Claims 5-7, 17-19, 30-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Paschen et al. discloses in US Patent 5,041,836 Self-Steered Antenna System.

b.) Easterling et al. discloses in US Patent 4,278,978 Baseband Signal combiner For Large Aperature Antenna Array.

c.) Chennakeshu et al. discloses in US Patent 5,991,331 System For Improving The Quality Of A Received Radio Signal.

d.) Chennakeshu et al. discloses in US Patent 6,034,987 System For Improving The Quality Of A Received Radio Signal.

e.) Lakkis discloses in US 2005/0053121 A1 Ultra-Wideband Communication Apparatus And Methods.

f.) Marrah et al. discloses in US 2002/014694 A1 Phase compensation Circuit.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
July 26, 2007

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER